Areas of low pressure, as in several previous months, were mainly ill-defined, and pursued irregular courses and lacked the strong features usually expected in March. Few extensive low areas entered the Pacific Coast States during the latter half of the month and none appear to have maintained their identity sufficiently to cross the western mountains as distinctive storms.

In the absence of cyclones or anticyclones of marked strength, the winds were correspondingly moderate, and high winds were infrequent over extensive areas. Along the Atlantic coast the winds were highest about the 28th, and over the central valleys winds exceeding 50 miles per hour were reported locally on the 26th and 27th. On the Pacific coast winds were comparatively light, only a few exposed points reporting as much as 50 miles per hour.

Over practically all the country east of the Rocky Mountains southerly winds predominated, extending to the extreme northern portions of New England and into the region of the Great Lakes and portions of the upper Mississippi Valley. They were likewise southerly over many portions of the far western districts, extending northward to the Canadian boundary.

TEMPERATURE.

Over the greater part of the central and eastern districts, in fact from the Rocky Mountains eastward, March, 1921, temperatures partook more nearly of those expected in April than those usually existing in the first spring month. Temperatures were also more uniform than usual, few abrupt changes occurring until near the close, when unusually high temperatures for March were quickly followed by the lowest temperatures of the month, due to the rapid advance of a severe cold wave for the season into the central and northeastern districts from the 27th to 29th.

For the month as a whole, the temperature averages were above normal in all parts of the country, but more particularly in the central and eastern districts, where the average excess ranged from 6 to 12° per day, and the monthly averages were in many cases the highest ever known for March, and in some cases higher than the normals for April. This excess was not the result of periods of extreme heat, but rather of daily temperatures continuously higher than normal; in some cases this excess was almost continuous save for two or three days near the end of the month.

The principal periods of maximum heat were near the end of the second and at the beginning of the third decades, when temperatures of 90° F. or slightly higher were recorded over much of the country from the Rocky Mountains eastward, and near the end of the month on the Pacific coast. The highest temperature recorded, 100° F., was reported from a point in Texas.

The principal periods of low temperature were near the first of the month over the Southeastern States, about the end of the first decade in the central and southern portions of the Great Plains and Rocky Mountains, and over the central valleys and middle eastern districts near the end of the month. The lowest temperature, −34° F, occurred in Montana, and temperatures between 20° and 30° below zero were reported from several other Rocky Mountain States, and generally along the northern border from Lake Superior westward to the mountains. Minimum temperatures reached the freezing point in portions of all the Southern States except in Florida, where the lowest observed temperature was 33° F.

The cold wave near the end of the month, while not so severe as others that have occurred in March of previous years, was exceedingly destructive to early vegetation in the central districts from the southern plains northeastward, due to the great advance made on account of the long period of unusual warmth preceding. A more complete statement concerning damage to vegetation by the cold of this period will be found in another portion of this REVIEW.

PRECIPITATION.

On account of the prevailing general warmth of the month, the precipitation distribution more nearly resembled that common to the warmer months of the year, thunderstorms being frequent and wide variations occurring in the total monthly falls at near-by points.

Precipitation was frequent and comparatively heavy over the Mississippi and Ohio Valleys, and the amounts from the eastern plains to the Atlantic coast were usually sufficient for current needs, although the East Gulf and and Atlantic Coast States had considerably less than usually falls in March, the deficiency being large in Georgia and portions of adjoining States.

West of the Rocky Mountains the precipitation for the month was less than usually falls save over the more northern districts, where there was a slight excess.

SNOWFALL.

Over the districts from the Great Plains eastward, the snowfall was usually light and its distribution was confined mainly to central and northern districts. In the Rocky Mountains and portions of the adjacent plains to the eastward considerable snow occurred during the month, and smaller amounts occurred generally in the mountains from central California northward.

The outlook for water during the coming summer from the accumulated snow in the high mountains continues good in the northern districts, where irrigation water is needed, and moderately so in most central districts, but continues poor over the southern sections.

RELATIVE HUMIDITY.

In the lower Lake region and southward throughout the Appalachian Mountain district, in the Missouri Valley, and westward over the Great Plains from Kansas northward, and in the Rocky Mountain and Plateau regions, the relative humidity was, as a rule, below the seasonal average; elsewhere there was relatively more moisture in the atmosphere than is usual for March.

LOCAL STORMS.

March 9: About 2 a. m. a violent local storm, probably a tornado, developed east of Macon, Miss., and moved northeastward through Prairie Point, and probably disappeared near Reform, Ala. Its path was about one-eighth mile in width and 38 miles long. According to the Macon Beacon of March 11, 1921, the winds dislodged many granite monuments in the Odd Fellows Cemetery near Macon. Some of the blocks moved were in the shape of 3-foot cubes, or larger. Many old cedar, magnolia, and live-oak trees were twisted and broken off. The damage reported, estimated at $10,000, was 5 houses partially destroyed near Macon, 3 stores, 3 dwellings, and a number of cabins blown down at Prairie Point, and 2 dwellings badly damaged at Reform. No lives were lost and only two or three persons were slightly injured.

Between about 4 and 4.45 p. m. the same day, a local storm did great damage in a strip of territory about

one-fourth mile in width and 20 miles in length from west to east across Chester County, Pa. The towns reporting the most damage were Doe Run, Romansville, and East Downington. The route of the storm may be marked from the damaged buildings and lines reported also at Avondale, Exton, Whitford, Thorndale, and Pequea. Much damage was done in Philadelphia. Many people were severely injured.

These storms developed in a narrow belt between unusually warm, moist southerly winds on the east and cold northerly winds on the west.

March 11: A tornado crossed the northwestern part of Louisiana in the vicinity of Gayle, and the Homer Oil Fields, and caused the death of three persons, injured about 35, and destroyed property having an estimated value of about $100,000. Heavy damage was also reported at Doddsville, Sunflower County, Miss., where six houses were said to have been blown down, two persons killed, and a score injured.

March 12: In Cedar Fork and Leesville townships in the northwestern part of Wake County, near Morrisville, a tornado caused property damage estimated at $10,000, but without loss of life. The characteristic tornado cloud about 100 feet wide, was seen, and a heavy downpour followed immediately after its passage. Among the freaks of the storm may be mentioned the loss of one horn by a cow which was uninjured, and the movement of a boy 400 yards through the air without injury to him.

March 17: About 10 miles west of Newport, Ark., a tornado caused injury to a number of people and property damage estimated at $10,000.

March 20: At Plainville, Adams County, Ill., a tornado of probably small proportions caused some property damage.

March 24: A tornado north of Dayton, Ohio, caused small damage in several villages, but no lives were lost.

A tornado originated about 3.30 p. m., apparently in the eastern part of Maury County, Tenn., about 8 miles northwest of Lewisburg, and traveled northeastward across the northern part of Marshall County. It was most severe and caused the greatest damage at Rich Creek, 10 miles north of Lewisburg, where four persons were killed and one injured. In the vicinity of this place the property damage amounted to $30,000 or $40,000, including the wrecking of five dwellings, four freight cars, and a number of barns and outhouses. Between 4 and 5 o'clock a "destructive wind, rain, and hail storm" was reported in the northern part of Bedford County, doubtless a continuation of the Rich Creek tornado. It reached a point 4½ miles southeast of Murfreesboro, Rutherford County, at 4.30 p. m., having covered a distance of about 40 miles during the hour. One dwelling was destroyed and considerable other damage done in that vicinity. According to reports, a peculiarity developed in the storm at this place in the form of "two tornadoes * * * about 500 yards distant from each other at the same time and houses in between the two were not in the least injured. * * * The two tornadoes were cone shaped and were distinctly observed by a number of residents."

The storm's path was very narrow, being about 100 feet in its early stages and between 30 and 40 feet later. The cloud was said to be small, the accompanying rainfall was light, and the sun was shining on both sides of the storm's path and very near thereto. While no damage seems to have occurred in adjacent counties, there were reports of hail from several places near the point of origin of the tornado.

March 26: A tornado passed over portions of Nobles County, Minn., causing the death of two persons and much property loss.

March 28: A fairly well-developed tornado occurred in the vincinity of Somerville, Somerset County, N. J., causing considerable property damage. One child was killed in a storm in the Bay Ridge section of Brooklyn, N. Y., where a motion-picture theater overturned and much other damage occurred.

March 31: A severe local storm caused considerable damage to wires and outbuildings at Port Arthur, Tex.

A tornado which is reported to have swept across the northern section of Albany, Ga., killed two people and injured several, and caused property damage estimated at from $200,000 to $300,000. After leaving Albany the storm did not come down to earth again till about 12 miles northeast of the city, in Worth County, 3 miles southwest of Oakfield, injuring two persons and wrecking several houses and other buildings.

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STORMS AND WEATHER WARNINGS. WEATHER AND CROPS.

EDWARD H. BOWIE, Supervising Forecaster.

WASHINGTON FORECAST DISTRICT.

Special forecasts were made on a number of dates. Of these, the following are mentioned: On the 2d a forecast for fair and considerably colder weather with fresh west and northwest winds was issued for Washington, D. C., on Friday, March 4, when Warren G. Harding was inaugurated President of these United States; on the 24th a special forecast was sent to Lieut. Coney at Pablo Beach, Fla., to the effect that wind and weather were favorable for a start on a trans-America flying trip. Lieut. Coney left after midnight of the 24th, encountered good flying weather, but on account of motor trouble while over northern Louisiana was forced to land and while doing so his machine hit a tree and he was fatally injured.

Storm warnings on Lake Michigan.—Advisory warnings of weather and winds interfering with navigation were issued for Lake Michigan on the 5th, 8th, 12th, 19th, 20th, 24th, 26th, 27th, and 29th of the month. The severest storm of the month occurred on the 26th and 27th, when a disturbance of great intensity moved northeastward from Iowa to Lake Superior, attended by south shifting to west gales with rain and thunderstorms.

Storm warnings on the Atlantic coast.—On the 2d small-craft warnings were displayed on the middle Atlantic and New England coasts; on the 6th southwest storm warnings were displayed at and north of Delaware Breakwater and small-craft warnings south of Delaware Breakwater to Cape Hatteras; on the 9th northwest storm warnings were displayed at and north of Delaware Breakwater; on the 17th and 19th small-craft warnings were displayed on the middle Atlantic and New England coasts; on the 20th southwest storm warnings were displayed at and north of Delaware Breakwater and these warnings were continued through the 21st; on the 24th small-craft warnings were displayed on the middle Atlantic and New England coasts and later on this date the full southwest storm warnings were ordered at and north of Delaware Breakwater; on the 28th northwest storm warnings were displayed on the middle Atlantic and New England coasts. The storms of the night of the 24th and